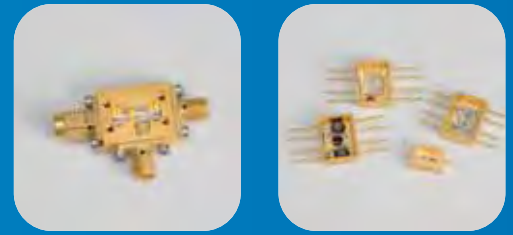


RF & Microwave Modules

Attenuators
Limiters
Couplers
Mixers



ATTENUATORS

Frequency (GHz)	Application	Attenuation Dynamic Range (dB)	V.S.W.R	Insertion Losses (dB)	Transition Time (μ s) 10 - 90 & 90 - 10	Package	Part Number
8 - 12	Automatic Gain Control	48	1.9	1.85	1	BMH3	ADB3-01

LIMITERS

Frequency	Application	Power in		Leakage power Max. dBm	Insertion Loss Max.	Recovery Time @ 1 dB Max.	Package	Part Number
		CW Max. W	Peak Max. W					
0.5 - 12.4 GHz	Channel receiver protection	5	300 (1 μ s. DC=1%)	21	1.25	100 ns	BMH76	MH341-05
L Band. wide band	Channel receiver protection	20	200 (100 μ s. 1 kHz PRF)	17	1.65	1 μ s (@ 3 dB)	BMH230	MH342-01
2 - 18 GHz	Channel receiver protection	3	500	21	2.5	300 ns	BMH230	LMB2-X2
S Band. 15% bandwidth	Channel receiver protection	5	-	15	1.5	2 μ s	BMH230	LMB2-X3
X Band. 5% bandwidth	Channel receiver protection	20	-	15	1.8	500 ns	BMH230	LMB2-X1

COUPLERS: SPACE & DEFENCE APPLICATIONS

Frequency band (MHz)	Application	Input level W max	Insertion loss dB max	Coupling dB	Isolation dB min	Phase	Phase balance max	Amplitude balance dB max	VSWR input/output ports max	Impedance Ohms	Package	Reference
23-27	2 ways 90°	2	0.4	3	20	90	± 1	0.5	1.3:1	50	SMA Connectors	C2C-01
1000 - 2000	2 ways 90°	1	0.6	3	18	90	± 3	0.8	1.5:1	50	Drop in	C2C-02

MIXERS: SPACE & DEFENCE APPLICATIONS

Frequency RF MHz	Type	Frequency		LO Power dBm	Conversion Loss (@ lower / Upper frequency). Max. dB	Isolation (@ Lower / Upper frequency)			Package	Reference
		LO	IF			LO - RF	LO - IF	RF - IF		
		MHz								
0.5 - 500	Double balanced	0.5 - 500	DC - 500	+7	7	45 / 32	40 / 30	35 / 20	FP4	MXF-01
10 - 1 500	Double balanced	10 - 1500	DC - 1500	+7	7.5 / 10.5	40 / 25	35 / 15	25 / 10	FP4	MXF-02
0.001 - 3 500	Termination Insensitive	0.001 - 3500	5 - 1500	+10	7 / 10	30 / 20	30 / 20	30 / 18	FP4	MXF-03
2 000 - 18 000	Triple balanced	2 000 - 18 000	0.5 - 8 000	+13	9.5	25	20	20	Removable SMA connectors	MXC-01

Frequency RF MHz	Type	Frequency		LO Power dBm	Conversion Loss Max. dB	Isolation		Image Rejection dB	Package	Reference
		LO	IF			LO - RF	LO - IF			
		MHz								
1 500 - 1 650	Image Reject Mixer	1360 - 1510	90 - 190	+10	9.5	40	40	25	Flat pack	MRF-01

RF & Microwave Modules

Switches
Drivers
Transformers
Circulator - Isolator - Limiter

SWITCHES: SPACE & DEFENCE APPLICATIONS

Frequency Range MHz	Application	Switch Type	CW Input Power W Max.	Insertion Loss	Isolation	Suggested bias conditions		Package	Part Number
				dB Max.	dB Min.	Forward mA Typ.	Reverse V Typ.		
				@ 10 MHz. 200mA	@ 100 MHz. 200V				
1.5 - 50	High Power Switch	SP2T. common anode	1000	0.15	37	1000	700	BH405	SH90207
1.5 - 50	High Power Switch	SP2T. common cathode	1000	0.15	37	1000	700	BH405	SH91207
				@ 200 MHz. 100mA	@ 100 MHz. 0V				
10-600	High Power Switch	SP2T. common anode	10	0.35	35	100	50	TO39	SH90101
10-600	High Power Switch	SP2T. common cathode	10	0.35	35	100	50	TO39	SH91101
				@ 100 MHz. 200mA	@ 200 MHz. 100V				
20-500	High Power Switch	SP2T. common cathode	1000	0.20	33	400	600	BH403a	SH91107
				@ 400 MHz. 100mA	@ 200 MHz. 0V				
20 - 1000	High Power Switch	SP2T. common anode	100	0.35	25	200	150	BH203N	SH90103
20 - 1000	High Power Switch	SP2T. common cathode	100	0.35	25	200	150	BH203N	SH91103
20 - 1000	High Power Switch	SP3T. common anode	100	0.35	25	200	150	BH204N	SH92103
20 - 1000	High Power Switch	SP3T. common cathode	100	0.35	25	200	150	BH204N	SH93103
2000 - 2300	Space low Power Switch	SP2T reflective	0 dBm	1.1 @ +70°C	40	CMOS driver		SMD like . 60x50mm	S2C-01
2000 - 2300	Space High Power Switch	SP2T absorptive	37 dBm	1.7 @ +70°C	40	CMOS driver		SMD like . 60x50mm	S2C-02
2000 - 2300	Space High Power Switch	SP4T reflective	37 dBm	1.7 @ +70°C	40	CMOS driver		SMD like . 60x50mm	S4C-01

DRIVERS: SPACE & DEFENCE APPLICATIONS

Driver Type	Application	Supply voltage V	High level input voltage for VCC= 4.5V	Low level input voltage for VCC= 4.5V	Input rise and fall time ns	Package	Reference
CMOS	Pin diode Switch driver	+5 -12	3.15 V min	1.35 V max	400	FP4	DNF-01

TRANSFORMERS: SPACE & DEFENCE APPLICATIONS

Frequency (MHz)	Application	Ratio	Insertion Loss dB Max.	Input Return Loss dB Max.	Phase Unbalance Max.	Amplitude Unbalance dB Max.	Package	Reference
2 - 220	Analog Digital Converter	1:2	1.1	13	0.5	± 3	FP6	TFF2-D1
2 - 500	Analog Digital Converter	1:1	1	11	0.5	± 5	FP6	TFF2-A1
2 - 500	Analog Digital Converter	14	1.5	10	0.5	± 4	FP6	TFF2-E1
200 - 450	Analog Digital Converter	1:2	1.6	10	0.7	± 3	FP6	TFF2-D2
600 - 850	Analog Digital Converter	1:1	1.5	12	0.5	± 4	FP6	TFF2-A2

CIRCULATOR-ISOLATOR-LIMITER (CIL): SPACE & DEFENCE APPLICATIONS

Frequency	Bandwidth %	Insertion Loss Port1 -> Port2 Max dB	Insertion Loss Port2 -> Port3 Max dB	Insertion Loss Port1 -> Port3 Max dB	VSWR	Flat leakage Max dBm	Spike leakage Max dBm	Recovery time µs	Peak Power W	Load Power CW W	Package	Part Number
S-band	16	0.65	0.95	22	1.22	10	14	2	250	10	Drop-in: 19x36x8 mm	NF8109
S-band	15	0.6	1.5	16	1.40/1.60	14	18	1	60	10	Drop-in: 28x10x5.1mm	NF8100
C-band	1.1	0.5	1.3	20	1.20	14	10	1	15	1.3	Drop-in: 28x10x5.1mm	NG8145
X-band	5	1.0	1.2	26	1.30	5	-	2	6	1	SMD: 8.9x20x3.5mm	NJ8125